RAIDIX

RAIDIX Technology

Fast software RAID

Ensures minimum storage performance loss and reduces total rebuild time in case of drives failures

High Speed of the Checksums Calculations

The core innovation of our products is the unique software RAID which calculates array parity faster than any other alternatives in the storage industry. RAID engine reads and writes parity blocks with the record speed (about 25GBps for 1 CPU core) and therefore it keeps high array performance even when the drive goes down.

During the sequential workloads, drive failure causes less than 10% loss of the total storage performance. This result is better than delivered by any other existing storage solution.

Reduced RAID Rebuild Time

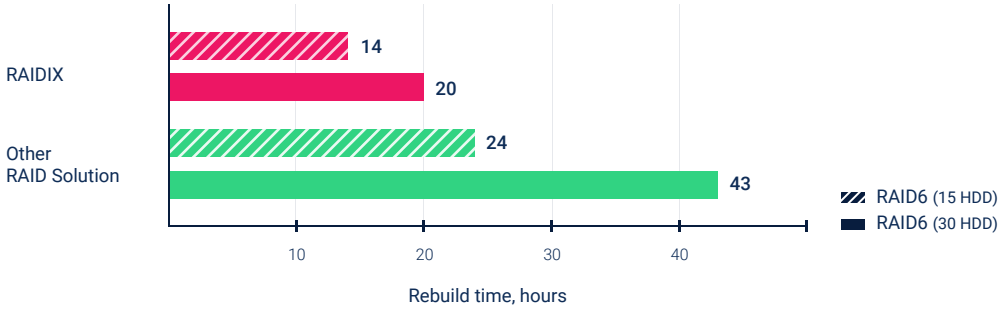
Rebuild (or reconstruction) of the RAID after drive failure is a potentially dangerous time frame, which may cause a lot of troubles for storage administrators.

First of all, reconstructing data to a new drive usually consumes a significant part of the total array performance. Second, it increases the risk of data loss because the number of drives acceptable for the failure is down by one. For instance, RAID 5 in such conditions has no protection by parity anymore, and the next drive failure will cause fatal data losses. Third, there is a chance to reveal a bad block error since all drives get total recalculation, including rarely requested data too.

In most cases, arrays continue to work during the rebuild period. This array activity usually has only 10 to 30 percent priority of the total computational resources[1]. The less priority is and the more drive capacity we have, the longer period rebuild will take. Depending on the circumstances, it can take from a few hours to a few days or even weeks.

With fast checksums calculation, RAIDIX software array spends significantly less time to perform rebuild operations compared to existing solutions at the global storage market.

[1] *For hardware RAID controller, priority rate also depends on overall technical characteristics set by manufacturer*

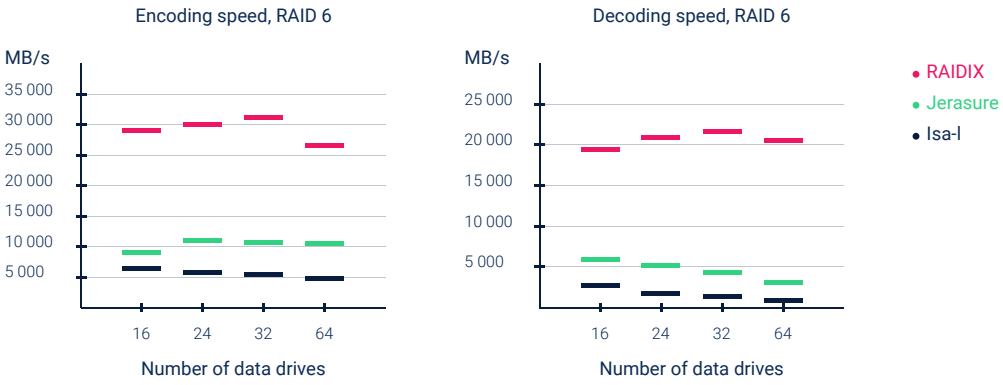


Rebuild time comparison of the RAID 6 by RAIDIX software and RAID 6 by an existing hardware RAID controller. Reconstruction priority is 15%, 10TB HDD, 15 and 30 HDDs in the arrays.

Unique Calculation Mechanism

The fast-work mechanism of the RAIDIX software array is based on original vectorization calculations with SSE4.2 and AVX Intel CPU extensions while using Reed-Solomon error correction. The key idea of this approach is to use specific data placement on CPU vector registers which significantly boosts data coding and decoding speed.

Comparison of the RAIDIX, ISA-L (Intel), and Jerasure libraries by coding and decoding speed in RAID 6.



Advantages of the RAIDIX Software RAID

Due to its fast coding and decoding ability, RAID provides you with a stable performance level needed for smooth and uninterrupted business operations. Fast RAID rebuild protects your storage from the system downtime and mitigates the impact on your workflow even if a few drives fail.

That is crucial for data-intensive systems and high-density storage infrastructures where even a single drive failure can cause the checksum recalculation for a vast amount of data.

In RAIDIX, we have developed a range of technologies that apply a fast RAID engine to enhance software-defined storage functionality.

RAID 7.3

Triple-parity RAID almost equals RAID 6 performance level for sequential workloads, but also demonstrates enormous data protection.

RAID N+M

In this RAID you have an opportunity to set a specific number of drives (up to 32) for checksum allocation.

Advanced Reconstruction

Advanced Reconstruction automatically excludes the slowest drives from reading operations to keep a high level of total array performance.

Partial Reconstruction

Partial Reconstruction significantly reduces total RAID recovery time after emergently drive removing or deliberate enclosure reconnection.

Silent Data Corruption Protection

Fast checksum calculation helps system scan and make data correction of the silent errors with no performance loss.

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